

Alexander Rossi Miller

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Positions Held

- 2022 Visiting Researcher, Universität Kaiserslautern, Germany
- 2017–2020 Member, Universität Wien, Vienna, Austria
- 2017 Visiting Scientist, Institut Henri Poincaré, Paris, France
- 2014–2017 J. L. Doob Research Assistant Professor, University of Illinois

Education

- 2013 Ph.D. in Mathematics, University of Minnesota

Publications

- 20. Covering numbers for symmetric groups
 Alexander R. Miller
 Preprint
- 19. The characters of symmetric groups that depend only on length
 Alexander R. Miller
 Math. Z., in press
- 18. Zeros and roots of unity in character tables
 Alexander R. Miller
 Enseign. Math., in press
- 17. On Foulkes characters
 Alexander R. Miller
 Math. Ann. **381** (2021) 1589–1614
- 16. The sparsity of character tables of high rank groups of Lie type
 Michael J. Larsen and Alexander R. Miller
 Represent. Theory **25** (2021) 173–192
- 15. Congruences in character tables of symmetric groups
 Alexander R. Miller
 Preprint
- 14. Many zeros of many characters of $GL(n, q)$
 Patrick X. Gallagher, Michael J. Larsen, and Alexander R. Miller
 Int. Math. Res. Not. IMRN **2022** 4376–4386

13. Dense proportions of zeros in character values
Alexander R. Miller
C. R. Math. Acad. Sci. Paris **357** (2019) 771–772
12. Character restrictions and reflection groups
Eugenio Giannelli and Alexander R. Miller
J. Algebra **531** (2019) 336–348
11. On parity and characters of symmetric groups
Alexander R. Miller
J. Combin. Theory, Ser. A **162** (2019) 231–240
10. Walls in Milnor fiber complexes
Alexander R. Miller
Doc. Math. **23** (2018) 1247–1261
9. Orthogonal polynomials and Smith normal form
Alexander R. Miller and Dennis Stanton
Monatsh. Math. **187** (2018) 125–145
8. Some characters that depend only on length
Alexander R. Miller
Math. Res. Lett. **24** (2017) 879–891
7. Eigenspace arrangements of reflection groups
Alexander R. Miller
Trans. Amer. Math. Soc. **367** (2015) 8543–8578
6. Foulkes characters for complex reflection groups
Alexander R. Miller
Proc. Amer. Math. Soc. **143** (2015) 3281–3293
5. The probability that a character value is zero for the symmetric group
Alexander R. Miller
Math. Z. **277** (2014) 1011–1015
4. Reflection arrangements and ribbon representations
Alexander R. Miller
Ph.D. Thesis, 2013
European J. Combin. **39** (2014) 24–56
3. Differential posets have strict rank growth: a conjecture of Stanley
(Positively answers 25-year-old question of R. P. Stanley from 1988 in JAMS)
Alexander R. Miller
Order **30** (2013) 657–662
2. Note on 1-crossing partitions
M. Bergerson, A. Miller, A. Pliml, V. Reiner, P. Shearer, D. Stanton, N. Switala
Ars Combinatoria **99** (2011) 83–87

1. Differential posets and Smith normal forms
Alexander R. Miller and Victor Reiner
Order **26** (2009) 197–228

Conference Proceedings

2. Vanishing results for character tables
Alexander R. Miller
in “Character Theory and Categorification”,
Oberwolfach Reports **19** (2022), to appear
1. Milnor fiber complexes and some representations
Alexander R. Miller
in “Topology of Arrangements and Representation Stability”, pp. 43–123,
Oberwolfach Reports **15** (2018)

Selected Lectures

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|------|------|---|
| 2023 | July | Centre International de Rencontres Mathématiques, Marseille, France |
| 2022 | Aug | Darstellungstheoretage, Technische Universität Kaiserslautern, Germany |
| 2022 | Aug | Character Theory and Categorification, Oberwolfach, Germany |
| 2021 | Mar | Combinatorics Seminar, University of Southern California, Los Angeles |
| 2020 | Feb | Bern–Neuchâtel–Fribourg Intercity Seminar, Universität Bern, Switzerland |
| 2019 | Sep | Austrian Mathematical Society Conference, Dornbirn, Austria |
| 2019 | Jan | Combinatoire Énumérative et Analytic, Université Paris Diderot, Paris, France |
| 2018 | Nov | Einstein Workshop on Algebraic Combinatorics, Freie Universität Berlin, Germany |
| 2018 | May | Algebra & Representation Theory Seminar, University of Cambridge, UK |
| 2018 | Mar | Séminaire Lotharingien de Combinatoire, Institut Camille Jordan, Lyon, France |
| 2018 | Mar | Arbeitsgemeinschaft für Diskrete Mathematik, Technische Universität Wien, Austria |
| 2018 | Jan | Topology of Arrangements and Representation Stability, Oberwolfach, Germany |
| 2017 | Dec | Algebraic and Enumerative Combinatorics, SFB Statusseminar, Strobl, Austria |
| 2017 | Nov | Algebra und Algebraischen Kombinatorik, Leibniz Universität Hannover, Germany |
| 2017 | Sep | Séminaire Lotharingien de Combinatoire, Bertinoro, Italy |
| 2017 | May | Midwest Combinatorics Conference, University of Minnesota, Twin Cities, USA |
| 2015 | Oct | Enumerative Algebraic & Geometric Combinatorics, AMS Session, Chicago, USA |
| 2013 | Mar | Algebraic Combinatorics, AMS Special Session, Oxford, USA |
| 2012 | Oct | Combinatorics Seminar, University of Minnesota, Twin Cities, USA |
| 2012 | May | Combinatorics Seminar, University of Minnesota, Twin Cities, USA |

2010	Apr	Combinatorial Representation Theory, AMS Special Session, St. Paul, USA
2009	Jan	Algebraic Combinatorics Seminar, Fields Institute, Toronto, Canada
2008	Mar	Combinatorics Seminar, University of Minnesota, Twin Cities, USA

Journals and Conferences Refereed

Advances in Applied Mathematics
 Algebraic Combinatorics
 Canadian Mathematical Bulletin
 Discrete and Computational Geometry
 Discrete Mathematics
 Electronic Journal of Combinatorics
 Formal Power Series and Algebraic Combinatorics
 Journal of Algebraic Combinatorics
 Journal of Combinatorial Theory Series A
 Journal für die reine und angewandte Mathematik (Crelle's Journal)
 Order, a journal on the theory of ordered sets and its applications
 Proceedings of the American Mathematical Society
 SIAM Journal on Discrete Mathematics

Teaching Experience

Courses taught at the University of Illinois

2016	Fall	Calculus III Honors (Math 241)
2016	Fall	Nonlinear Programming (Math 484)
2016	Spg	Conjugate Duality and Optimization (Math 589)
2016	Spg	Nonlinear Programming (Math 484)
2015	Fall	Nonlinear Programming (Math 484)
2015	Spg	Nonlinear Programming (Math 484)
2014	Fall	Fundamental Mathematics (Math 347)

Courses taught at the University of Minnesota

2014	Spg	Introduction to Modern Algebra (Math 4281)
2013	Fall	Calculus II (Math 1272)
2013	Sum	Applied Linear Algebra (Math 4242)
2011	Fall	Calculus II (Math 1272)
2011	Sum	Applied Linear Algebra (Math 4242)
2009	Sum	Calculus I (Math 1271)

Recitations led at the University of Minnesota

2014	Spg	CSE Linear Algebra and Differential Equations (Math 2373)
2012	Fall	Linear Algebra and Differential Equations (Math 2243)
2010	Spg	Calculus I (Math 1271)
2010	Spg	Honors Calculus II (Math 1572H)
2009	Fall	Honors Calculus I (Math 1571H)
2009	Spg	Sequences, Series, and Foundations: Writing Intensive (Math 3283W)
2008	Fall	Sequences, Series, and Foundations: Writing Intensive (Math 3283W)
2008	Spg	Honors Calculus IV (Math 2574H)
2007	Fall	Honors Calculus III (Math 2573H)

Teaching Awards

2008	Apr	<i>John Bowers Excellence in Teaching Assistance Award</i> , University of Minnesota. “...honors an outstanding teaching assistant who has demonstrated exceptional interest and commitment to the teaching of IT [Institute of Technology] students.”
2008	Feb	<i>Institute of Technology TA Award</i> , University of Minnesota. “...one of three TA’s that was voted best TA in the Institute of Technology. The voting was done completely by students in the Institute of Technology.”